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HW #3: Questions

1. Why does Facebook's data center specialist argue that "The internet is not a cloud"?

After watching the video, I did not know how to answer this prompt, but after doing all the necessary research, I can see why this data center expert for Facebook claims that "the internet is not a cloud." These are two very distinct ideas. Although both rely on data centers and networks, they both operate at various complexities and have different functions. To better understand, it is essential to describe what the internet and cloud do. This essay will dig deep into the reason why such a statement was made.

The internet is a network of connected devices that allows for the exchange of data and information. Regardless of where they are in the world, it lets users communicate with one another. Next, the internet is also a decentralized infrastructure meaning no organization owns or controls it. Thus, it is publicly available for everyone to use or access. According to Kahn and Dennis, the internet is a massive body of interconnected networks wherein standard protocols are required to operate and do what it does: transmit and receive data.

In contrast, the cloud is a computing model that provides instant access to computing resources such as servers, storage, and applications over the internet (Walker, 2022). To access those computing resources, users must sign into a virtual machine or a virtualized computing environment that the cloud provides. Unlike the internet, users can

access these computing resources whenever they need to. Further, users or organizations do not need to spend money on local hardware or infrastructure. They actually have the means to scale up or down their computing resources basing it off on their needs as a user or as an organization. They only pay for what they actually use, which is a great benefit. Moreover, unlike the internet, a public infrastructure, the cloud is a collection of private and public networks, data centers, or servers owned by different organizations or companies. It is a centralized architecture, and big tech companies like Amazon Web Services or Microsoft Azure provide it.

Confusion occurs from frequently using the terms "internet" and "cloud," notwithstanding their distinctions. The internet or cloud computing, for instance, are both examples of "the cloud," as used by individuals. These ambiguities may cause people to need to understand the vulnerabilities and advantages of cloud computing. For instance, some individuals might believe that storing data in the cloud is less secure than storing it locally. In fact, cloud companies frequently have more effective security mechanisms in place than individual users (Tech Crawlr). It needs to be clarified, but the internet is what one needs to access cloud services. Therefore, it is not a cloud service in itself.

In summation, these two infrastructures can indeed be easily misunderstood. Having to break down their purpose and function, we can agree that Facebook's data center specialist was correct when he said that the internet is certainly not a cloud. I could not agree more, for they are two different concepts. The internet is a physical infrastructure that makes data transmission and communication possible; meanwhile, the cloud is a computer architecture that depends on the internet to function and serve its users.

2. Facebook had over 2.3 billion users as of December 31, 2018. If Facebook continues to employ engineers at the same rate as stated in the video, how many engineers does Facebook have?

To estimate the number of engineers Facebook had in 2018, and as of today, based on the rate of 1 engineer per 1 million users mentioned in the video, which was made on June 2015, we can use the following calculations:

Number of engineers in 2018:

Number of users as of December 31, 2018 = 2.3 billion

Number of engineers = Number of users

2.3 billion / 1 million = 2,300 engineers

Therefore, if Facebook continued to employ engineers at the same rate as stated in the video, it is estimated to have had 2,300 engineers in 2018.

Number of engineers today:

According to Statista, Facebook had 2.96 billion monthly active users as of the fourth quarter of 2022.

Number of engineers = Number of users

2.96 billion / 1 million = 2,960 engineers

Therefore, Facebook is estimated to have around 2,960 engineers at the end of 2022.

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